



Michigan Department of Transportation

Line of Business Strategy for Vehicle-Infrastructure Integration

Part I: Strategic and Business Plan

Vision of
Partnership and
National Leadership

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Title

Line of Business Strategy for
Vehicle-Infrastructure Integration
Part I: Strategic Plan
Vision of Partnership and National Leadership

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Abstract

Part I of the Line of Business Strategy for Vehicle Infrastructure Integration (VII) provides an executive summary and high-level overview of the Michigan Department of Transportation's (MDOT) VII strategy in terms of mission, vision, and customer/partner needs and goals.

This plan will initiate a course of action toward establishing the required public and private sector partnerships that will ensure leadership, innovation, and progress across the State of Michigan. The strategy focuses on partnering, developing and deploying a VII infrastructure and testbeds; increasing safety and mobility; improving asset management; developing outreach programs to better expose others to VII in Michigan; justify the need for VII; and determining creative investment funding venues for VII activities.

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EXECUTIVE SUMMARY

Michigan's Vehicle Infrastructure Integration (VII) Strategic and Business Plan provides the foundation for the Michigan Department of Transportation's (MDOT) VII efforts with wireless vehicle communication systems. It includes a mission and vision that addresses MDOT's intent to partner with key organizations and provide leadership, statewide and nationally, to research, develop and deploy VII.

This strategic plan was formulated under the guidance of MDOT's Director Kirk Steudle and with input from executives representing different divisions of state and local government to align with MDOT's organizational mission which is to "provide the highest quality integrated transportation services for economic benefit and improved quality of life" that address the needs of MDOT customers and partners through improved safety, traffic management, and asset management. The strategy describes MDOT goals that will address a broad set of customer/partner needs that include providing leadership in VII research and development, providing state-of-the-art VII test facilities and growing a sustainable VII deployment. The plan also describes the economic needs that will be met by pursuing financial support to provide a cost-effective integrated transportation system that will have positive economic benefits for the State of Michigan.

Currently, 42,500 people die annually on our roadways nationwide. Traffic crashes are the leading cause of death for persons between ages four and 33. Fifty percent of these deaths occur from two crash types: intersection collisions and vehicles leaving the roadway. Annual traffic crashes cost the American economy \$164 billion, and as of 2005, traffic congestion costs \$78 billion and wastes 2.9 billion gallons of fuel.

MDOT's VII Strategic and Business Plan captures the vision, mission, needs, and goals that will guide a coordinated, efficient, safe, and integrated vehicle-infrastructure system throughout the state. The strategic plan will initiate a course of action toward establishing the required public and private sector partnerships that will ensure leadership, innovation, and progress across the state of Michigan. Roads will need the appropriate and standardized communication infrastructure. Vehicles will need compatible transceivers and processors to make this all work. The strategy focuses on partnering, developing and deploying a VII infrastructure and testbeds; increasing safety and mobility; improving asset management; developing outreach programs to better expose others to VII in Michigan; justify the need for VII; and determining creative investment funding venues for VII activities. This strategy is reflected in MDOT's VII Mission.

MDOT's VII Mission

MDOT's VII Mission is to partner with public agencies, the automotive industry, and the telecommunications industry to lead the nation in VII research and sustained VII deployment by providing the public foundation for Michigan's new automotive information technology industry and ensuring improvements in transportation systems safety and operational performance.

Customers and Partners

MDOT cannot do this alone. It will require initiating partnerships and nurturing relationships with some familiar colleagues in public agencies and some less familiar new acquaintances in the automotive and telecommunications industries. Some of MDOT's potential customers and partners include:

- Motorists
- Commercial fleets
- Local agencies (local and regional transportation agencies)
- USDOT
- Automotive OEMs
- Automotive suppliers (including telematics)
- Telecommunications companies and consumer electronics
- Universities
- Other states

MDOT's VII Vision

Together with their customers and partners, MDOT will work toward their common vision of leading the nation in the development and implementation of VII. Elements of this shared vision include:

- The Michigan partnership is a recognized leader of and key reason for the success of VII.
- Michigan is partnering with the automotive industry, including OEMs and suppliers, and the telecommunications industry, and has demonstrated success in researching, developing, and deploying VII.
- Michigan is partnering with other states to assure coordinated research, development and deployment across the United States.
- VII test results provide clear measurable evidence that VII increases transportation safety, mobility, and security.
- VII has been accepted enough to be programmed into the annual budgeting of Michigan's transportation needs.
- VII has become an emerging industry with an entrepreneurial foundation that is central to Michigan's strong new information technology sector.

- VII is becoming acknowledged as the biggest change in passenger and commercial transportation since the inception of the Interstate Highway System.

This is a tall order, and the Michigan team is determined and particularly well-situated to make this happen.

Strategic Goals as Activity Fits

Several strategic goals will help set MDOT's sights on taking the right actions to attain this vision in partnership with the Michigan team. These goals can be viewed as "activity fits," defined as a group of activities that "fit together" or are aligned to achieve a desired outcome or goals like building strong partnerships and deploying the appropriate infrastructure for leading the national deployment of VII. The following are MDOT's strategic goals for the VII line-of-business:

- **Partnership:** Partner with OEMs and other stakeholders essential to developing and delivering a national VII.
- **Infostructure:** Lead the nation in the design, testing, and deployment of an effective standard VII infostructure.
- **Test Bed:** Design, implement, maintain, and promote Michigan VII test and development facilities.
- **Safety:** Support Michigan-based VII safety system research, development, and early deployment.
- **Traffic Management:** Support Michigan-based VII traffic management system research, development, and early deployment.
- **Asset Management:** Support Michigan-based VII asset management system research, development, and early deployment.
- **Outreach:** Maintain high visibility of Michigan activities through outreach and public awareness.
- **Justification:** Justify planned deployment through analysis and research providing evidence of value-added results.
- **Investment:** Coordinate and leverage Michigan investment to attract public, private, national, and international support.

INTRODUCTION

The VII Strategic and Business Plan was organized and developed by MDOT with support from the Michigan State Police (MSP), the Michigan Economic Development Corporation (MEDC), the Michigan Department of Information Technology (DIT), and the Road Commissions for Macomb and Oakland Counties.

The plan takes into account that Michigan is the hub of the automotive industry in the United States. Automotive research, design, and engineering are centered in the state. Furthermore, there are a large number of automotive test and fleet vehicles that could potentially be used to prove the VII concept, and this is also unique to Michigan.

VII can be described as a systems approach to road transportation that relies on wireless communication technology to communicate between vehicles and between vehicles and the roadside. Experts forecast that innovation in mobile communications linking vehicles and highways will help make our lives easier and our driving safer. For example, in the future, vehicles may communicate with traffic signals, making intersections safer because the vehicles will know of signal timing and other vehicle behavior at the intersection. Research and development efforts also suggest that vehicles will also communicate with each other and warn drivers of unsafe conditions. As market penetration of connected vehicle products increases then traffic managers will start receiving wireless messages from moving cars and trucks serving as traffic probes, detecting traffic problems like congestion and potholes as they emerge.

Safety is one of the greatest concerns of motorists – for good reason. In the United States, road transportation poses a greater risk to life and health than does gun violence or common diseases like flu and pneumonia. In fact, over 2.6 million rear-end, run-off-the-road, and lane-change accidents occur every year in the United States. The United States Department of Transportation (USDOT) has estimated that active safety systems and similar countermeasures could prevent nearly half of those crashes, saving thousands of lives. Information systems will play a critical role in improving safety by making it possible to warn drivers of dangerous traffic conditions (approaching emergency vehicles, dangerous curves, hazardous road conditions, etc.) as well as helping traffic agencies and emergency services respond more quickly to life threatening situations.

Mobility that was made possible by the completion of the US national highway system is now threatened by congestion caused by urban sprawl and Americans' mobile lifestyles. Motorists want to get to their destinations quickly and without delay. This shifts the focus of road transportation services from supporting basic travel to promoting more efficient transportation. Information systems can help here by detecting incidents more quickly and informing drivers of impending delays or alternate routing. The information can also help the road authority respond more efficiently to problems that cause delays on the roadways.

MDOT is working with automotive, telecommunications, and consumer electronics companies to research, develop and deploy a wireless infrastructure on Michigan roads. The intent is this investment will enable vehicles to communicate with the communications infrastructure and to exchange messages with the effect of improving vehicle safety and to providing transportation services inside the vehicle and to traffic management and emergency response centers.

Vehicles that are outfitted with wireless broadband technology will have the ability to communicate with the roadside and receive real time messages about emerging conditions while approaching unsafe intersections, traffic incidents, road construction and maintenance sites. Drivers will be able to make appropriate maneuvers to increase their safety and that of the vehicles around them. Vehicles will also be able to communicate with each other and send warnings to help coordinate maneuvers and increase safety.

Similarly, traffic management operators will receive real time wireless messages from vehicles and be able to monitor traffic conditions and respond immediately to, or even in anticipation of, traffic events. This will improve management of traffic around incidents and will help prevent incidents from occurring in the first place by providing drivers with in-vehicle safety and communication systems. An added feature for MDOT and other transportation agencies is that this technology will allow vehicles to serve as “probes” on the roadway sending back continuous information on pavement, weather, and other location specific conditions along the road network. These systems will save MDOT and other transportation agencies time and expense while helping manage the public road infrastructure assets more effectively.

Communication technologies are now more versatile and cost-effective than at any time in the past – enabling the design of new digital highways that will help us enjoy greater mobility and safety along our highways. The future of VII provides Michigan an opportunity to take the lead in supporting a new high growth industry that combines existing advanced automotive design and engineering resources along new telecommunications and consumer electronics products to provide the most integrated and technologically advanced transportation system in the world.

To accomplish this, MDOT will partner with other equally committed parties (public agencies, automotive manufacturers and suppliers, telecommunications and consumer electronics companies), to lead the nation in VII research, development and sustained VII deployment. This partnership is the core of a broad strategy that will place Michigan at the center of automotive wireless developments.

Michigan is the international center for automotive engineering and design, this sets it apart from other regions of the United States as the place to incubate and grow this new industry. Michigan has the people, technology and commitment to make this happen. These local resources provide the foundation for rapid testing and development of new technologies enabling Michigan businesses to compete in the emerging connected vehicle market. For example, Michigan employs one out of every four automotive workers in the United States. Michigan is also home

to more than 186,000 skilled trades workers. No other state can offer the concentration of automotive engineers that are familiar with the requirements of in-vehicle safety and communications systems. No other state can offer the concentration of Original Equipment Manufacturers (OEM) and suppliers that will take responsibility for setting standards, designing, and deploying these systems. Michigan is the hub of the North American automotive industry.

The time has come for state and federal transportation departments to cooperate with automotive manufacturers and suppliers to test the value of nationwide deployment of wireless communications that will increase motorist mobility and safety while enabling new services that will provide commercial benefits.

MDOT is committed to taking a leadership role and is collaborating with the automotive Vehicle Infrastructure Integration Consortium (VII-C), Crash Avoidance Metrics Partnership (CAMP), Integrated Vehicle Based Safety System (IVBSS) program, and the Connected Vehicle Trade Association (CVTA) all of which are centered in Michigan. MDOT also has a leadership role in the Connected Vehicle Proving Center (CVPC) with Director Kirk Steudle serving as Chair of the CVPC's Policy Advisory Committee (PAC). The CVPC PAC includes representatives from General Motors, Ford, Chrysler, Toyota, the Center for Automotive Research (CAR), the Road Commission for Oakland County (RCOC), and CVTA. MDOT is one of the original members of the USDOT's National VII Working Group. During the last several years, MDOT has been working to establish a connected vehicle test bed in cooperation with GM, Ford, Chrysler, and Nissan.

An essential component of the strategy described in this plan is the executive level partnership between the State of Michigan and its automotive OEMs. This partnership includes Chrysler, Ford, General Motors, Hyundai, Nissan, Toyota, and others. These manufacturers are a major presence in the State of Michigan and are equally committed to the mission of advancing VII in Michigan and throughout the nation. This partnership provides a high level strategic approach to addressing new opportunities for transportation innovation and economic development in the State of Michigan.

MDOT's mission is to provide the highest quality integrated transportation services for economic benefit and improved quality of life. With regard to technology, the MDOT Intelligent Transportation Systems (ITS) mission is to develop and sustain a program at MDOT to improve transportation systems safety and operational performance using existing and innovative Intelligent Transportation Systems technologies for economic benefit and improved quality of life. The vision is MDOT as a public leader and a supporting partner in the research, development, deployment, operation, and maintenance of ITS. Part of this vision is for MDOT to be recognized nationally for VII research and deployment. The VII Strategic and Business Plan provides the strategy and activities to accomplish these goals.

MDOT's line-of-business (LOB) strategy addresses the needs of MDOT customers and partners and is captured in the LOB diagram for VII depicted in Figure 1. The diagram presents the strategy on a single page in a format that highlights customer needs, displays internal measurable goals, lists all relevant strategic activities, suggests synergies that leverage MDOT's strengths, and helps readers understand the alignment between management activities and the line-of-business goals. The diagram also shows how each goal supports the needs of the customers and partners. This diagram is the focal point for understanding how MDOT will create the essential alignment between the VII line-of-business strategy and MDOT's overall Strategic Plan.

MDOT VEHICLE INFRASTRUCTURE INTEGRATION MISSION AND VISION

MDOT's mission and vision for VII provides the foundation for the VII strategy and business plan. The plan elaborates on MDOT's ITS strategy, mission, and vision, while supporting the goals of MDOT's overall organizational strategy.

The VII mission statement expresses the overall, long-range intention for Michigan's VII program. The mission statement includes the purpose of MDOT's VII strategy; the "business" MDOT is engaging in to accomplish this purpose, and a statement of the values guiding its accomplishment.

MDOT's VII vision is an image of the future that guides MDOT's VII success in terms of an overall contribution to society. If the VII strategic plan is the "blueprint" for MDOT's work, then the vision is the "artist's rendering" of the achievement of that plan. It is a description that conjures up a similar picture of the end state after accomplishing the VII mission for MDOT and partners.

MDOT's VII Mission Statement

MDOT's Mission is to:

Provide the highest quality integrated transportation services for economic benefit and improved quality of life.

The specific needs and issues addressed by Intelligent Transportation Systems (ITS) are summarized in the ITS mission statement. MDOT's ITS Mission is to:

Develop and sustain a program at MDOT to improve integrated transportation system safety and operational performance using existing and innovative Intelligent Transportation Systems technologies for economic benefit and improved quality of life.

The needs and issues addressed by wireless vehicle communications systems are then summarized in the Vehicle Infrastructure Integration (VII) mission. MDOT's VII Mission is to:

Partner with public agencies, the automotive industry, and the telecommunications industry to lead the nation in VII research and sustained deployment by providing the public foundation for Michigan's new automotive information technology industry while ensuring improvements in integrated transportation systems safety and operational performance.

The intent is to establish wireless connectivity among vehicles and to the roadside infrastructure to help save lives, time, and money, and thereby spurring economic development in the State of

Michigan. This supports the American Association of State Highway and Transportation Officials (AASHTO) VII Policy Statement which supports the continued study, testing and deployment of VII applications and systems aimed at accomplishing the following goals: (AASHTO, 2005)

- Save Lives: Achievement of AASHTO's goal of reducing national highway crash rates to 1.0 fatality per 100 million vehicle miles traveled.
- Save Time: Reduce congestion and delays. Enhance the ability to make informed travel choices. Improve the ability of transportation managers to quickly respond to and clear incidents and non-recurring events.
- Save Money: Diminish lost productivity due to congestion and delays. Enable more timely goods movement, improved commerce and trade, and more efficient border crossings. Improve fuel efficiency and reduce cost of travel.
- Spur Economic Development and Create Jobs: Support initiatives through co-development and co-deployment opportunities. Seek creation of local industries to provide VII products and services.

MDOT's VII Vision Statement

There is one universally accepted rule of planning: You will never be greater than the vision that guides you. No Olympic athlete ever got to the Olympics by mistake. A compelling vision of his or her stellar performance inevitably drives all of the athlete's efforts over many years. The following vision statement was formulated to stretch MDOT's expectations, aspirations, and performance to accomplish their VII mission.

Again we start with the vision for Intelligent Transportation Systems. MDOT's Vision for Intelligent Transportation Systems (ITS) emphasizes partnership and leadership. In this vision MDOT is a public leader and supporting partner in the research, development, deployment, operation, and maintenance of ITS. MDOT's ITS vision is:

- MDOT integrates ITS applications into Michigan's transportation systems in a sustainable way, enabling our customers to experience improved system safety, mobility and reliability.
- MDOT is a leader and an effective partner in ITS research, development, deployment, operation, and maintenance.
- MDOT continues to lead in the research, development and sustained deployment of Vehicle Infrastructure Integration (VII).
- MDOT's ITS program is integrated statewide, and coordinated fully and seamlessly into MDOT's business processes.
- MDOT's ITS program is supported by dedicated long-term investment and managed in a sustainable manner.

Given the vision for Intelligent Transportation Systems the vision for Vehicle Infrastructure Integration is:

- *The Michigan partnership is a recognized leader of and key reason for the success of VII.*
- *Michigan is partnering with the automotive industry, including OEMs and suppliers, and the telecommunications industry, and has demonstrated success in researching, developing, and deploying VII.*
- *Michigan is partnering with other states to assure coordinated research, development and deployment across the United States.*
- *VII test results provide clear measurable evidence that VII increases transportation safety, mobility, and security.*
- *VII has been accepted enough to be programmed into the annual budgeting of Michigan's transportation needs.*
- *VII has become an emerging industry with an entrepreneurial foundation that is central to Michigan's strong new information technology sector.*
- *VII is becoming acknowledged as the biggest change in passenger and commercial transportation since the inception of the Interstate Highway System.*

MDOT'S VEHICLE INFRASTRUCTURE INTEGRATION STRATEGY

The VII strategy describes the goals, objectives, and activities that will be accomplished in the next five years to accomplish the VII mission and pursue the VII vision. Fewer crashes, less severe crash injuries, and more efficient travel are the targets for deploying the new communication technologies connecting the vehicles to the roadway infrastructure and the telecommunications "infostructure." Increased safety and more efficient mobility are the chief end products for MDOT's pursuit of VII.

While this is not the place to elaborate on the economic difficulties that Michigan is facing, it is not an exaggeration to say that the Michigan automotive industry is in crisis and that retaining and attracting jobs is at the forefront of the Governor's agenda. Michigan currently has more than 600,000 jobs tied directly to the automotive industry. MDOT's VII activities have a potentially important role to play in the conception of new products and services that will create and attract new automotive electronics and telecommunications jobs to Michigan. This will appeal to the:

- Automotive companies whose vehicles the VII devices will be attached to.
- Consumer electronics companies that will design and manufacture the electronic devices that drivers will use.
- Telecommunications companies that will design and supply the in-vehicle communications and roadside infostructure that the vehicles will communicate with.
- Automotive supply companies who will design and manufacture the telematics capabilities that will be integrated into the vehicles.
- Software companies that will adapt, develop, and manufacture new operating systems and applications that will operate in the vehicle and across the Internet and other wireless environments.
- Independent service providers who will eventually support the safety and probe data services that VII will provide to customers.

The general strategy is to create and attract new information technology (IT) jobs to Michigan by leveraging the unique automotive design and engineering resources already located in Michigan and expanding the IT jobs that will benefit from collaborating with an existing technology resource base. New jobs will come from the design of new products and services that take advantage of the new Vehicle Infrastructure Integration system. New jobs will be attracted to the engineering and design core with the expansion into consumer electronics and wireless communications. The intent is to make Michigan the birthplace and rightful home of an emerging industry in telematics and wireless mobile communication linked to the automobile.

The VII Program in Michigan impacts the lives of Michigan citizens beyond transportation and will have economic development impacts as well including:

- New information technology industries form in Michigan as a result of the VII development effort and are implemented as a result of coordinated efforts with State of Michigan economic development partners.
- Improved mobility for automaker related activities through coordination between MDOT and the automakers on VII and other transportation related issues.
- Improvements in safety, security and traffic flow provide a positive impact on quality of life, encourage private sector investment in Michigan, and improve tourism.

In order to accomplish these things, MDOT must pursue this opportunity using a process that involves extensive collaboration and partnership with organizations not traditionally involved in the infrastructure design process, including automotive companies with vehicles that will communicate with the system and with telecommunications and consumer electronics companies with devices and technologies that support electronic communication. The VII strategy focuses on describing what needs to be achieved and how to accomplish these goals over the course of the next five years.

Furthermore, in order to accomplish the goals of improving safety, mobility, and asset management (i.e., categories of VII use cases), it is essential that the investment made in proof of concept and field operational testing results in products and services that benefit MDOT and their customers be done in a manner that is independent of what is learned through design or testing. That is, although much of the near term activities will focus on design and testing, something of unquestionable value should emerge from this effort and lead to the development and deployment of systems that will improve driver safety and mobility in the State of Michigan. Therefore, a key to accomplishing the goals is to ensure that the investment in VII is sustainable and that the deployment plan is technically and financially feasible. Furthermore, it will be critical to ensure information security and exchange of data will support acceptable standards of user privacy.

Finally, this level of collaboration among public and private sector partners may eventually require the formalization of new relationships and the establishment of new models for doing business. Therefore, public agencies like MDOT will seek creative new ways to exchange its resources (i.e., roadside right-of-way) for private resources (i.e., data collected by probe vehicles), and use this exchange to deliver safety, mobility, and consumer services while formulating a way to develop new opportunities for both the public and private sectors.

Customers and Partners

MDOT has a wide range of potential customers and partners for VII. The term customer is meant to imply that MDOT provides products and services to users of the transportation system and that the system has economic and mobility benefits beyond the everyday commuter and other drivers that use the system. In this context, the concept of customer is any individual or organization that will use, benefit from, and/or pay taxes for Michigan's VII. Similarly, the

delivery of VII products and services will require partnering with many of MDOT's customers and benefit stakeholders, many of whom will gain by designing and offering products and services that the new market in VII will support. Some of MDOT's potential customers and partners include:

- Motorists
- Commercial fleets
- Local agencies (local and regional transportation agencies)
- USDOT
- Automotive OEMs
- Automotive suppliers (including telematics)
- Universities
- Other states

The customers and partners are the primary drivers of MDOT's VII strategy. The customer's long-term use of the products and services supported by MDOT and MDOT's partners will determine the viability and sustainability of VII and the ultimate success of this strategy.

Part II of this plan provides details for activities and metrics and also shows alignment with the overall strategic plan.

Figure 1: MDOT’s Strategy for VII

MDOT’s Strategic Plan for Vehicle Infrastructure Integration (VII)

MDOT’s VII Mission

Partner with public agencies, the automotive industry, and the telecommunications industry to lead the nation in VII research and sustained VII deployment, by providing the public foundation for Michigan’s new automotive information technology industry and ensuring improvements in transportation systems safety and operational performance.

MDOT’s VII Vision

- The Michigan partnership is a recognized leader of and key reason for the success of VII.
- Michigan is partnering with the automotive industry, including OEMs and suppliers, and the telecommunications industry, and has demonstrated success in researching, developing, and deploying VII.
- Michigan is partnering with other states to assure coordinated research, development and deployment across the United States.
- VII test results provide clear measurable evidence that VII increases transportation safety, mobility, and security.
- VII has been accepted enough to be programmed into the annual budgeting of Michigan's transportation needs.
- VII has become an emerging industry with an entrepreneurial foundation that is central to Michigan's strong new information technology sector.
- VII is becoming acknowledged as the biggest change in passenger and commercial transportation since the inception of the Interstate Highway System.

Customers and Partners

OEMs • Automotive Suppliers • Universities • Local Agencies • USDOT • Motorist • Commercial Fleets • Other States

Customer and Partner Needs

Growing Sustainable Deployment	State-of-the-art Test Facilities	Asset Management	Traffic Management	Safety	Economic Development	Leadership	Financial Support	Cost-effectiveness
<ul style="list-style-type: none"> • Advance research and testing of VII • Initiate and sustain the deployment of a standard ubiquitous national VII infostructure • Provide justification and political support for state and national VII deployment 	<ul style="list-style-type: none"> • State-of-the art VII test and development facilities and competencies are core to advancing VII technologies for the OEMs, automotive suppliers, telematics providers, and Michigan universities 	<ul style="list-style-type: none"> • Data retrieval and analysis of Michigan’s transportation assets and infostructure are required if transportation assets are to be managed effectively 	<ul style="list-style-type: none"> • Manage traffic and minimize congestion and delays to motorists, commercial fleets, local transportation agencies, the USDOT and other users 	<ul style="list-style-type: none"> • Reduce the number and severity of vehicle crashes • Reduce related property damage and productivity losses • Increase overall safety of equipped vehicles 	<ul style="list-style-type: none"> • Growth in VII-related jobs and a strong Michigan economy • Facilitate collaboration to work with all the parties involved in VII • Contribute to the emergence of a new industry that will create and attract new jobs to the state 	<ul style="list-style-type: none"> • National leadership and coordination • Promote quality, performance, and national deployment 	<ul style="list-style-type: none"> • Financial support for advancing research and development in VII • Advance the state-of-the art and practice in wireless technology 	<ul style="list-style-type: none"> • Provide effective VII products and services at the lowest cost

VII Strategic Goals

Partnership	Infostructure	Test Bed	Safety	Traffic	Asset Management	Outreach	Justification	Investment
Partner with OEMs and stakeholders and coordinate efforts	Lead the nation in designing, testing and deployment of an effective standard VII infostructure	Design, implement, maintain, and promote Michigan VII test and development facilities	Advance Michigan-based VII safety system research, development, and early deployment	Advance Michigan-based VII traffic management system research, development, and early deployment	Advance Michigan-based VII asset management system research, development, and early deployment	Maintain high visibility of Michigan activities through outreach and public awareness	Justify planned deployment through analysis and research providing evidence of value-added results	Coordinate and leverage Michigan investment and attract federal and international support

**** For more information about MDOT’s VII Strategic and Business Plan, go to www.michigan.gov/mdotvii**